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SENATE

REPORT
No. 469

CONTRIBUTIONS TO THE INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS AND ASSOCIATED UNIONS

JULY 20, 1965.—Ordered to be printed

Mr. CHURCH, from the Committee on Foreign Relations, submitted the following

REPORT

[To accompany H.R. 8862]

The Committee on Foreign Relations, to whom was referred the bill (H.R. 8862) to amend the act of August 7, 1935, to increase the authorized annual share of the United States as an adhering member of the International Council of Scientific Unions and associated unions, having considered the same, report favorably thereon without amendment and recommend that the bill do pass.

PURPOSE

H.R. 8862 raises the ceiling on U.S. contributions to the International Council of Scientific Unions and its associated unions (ICSU) from $65,000 a year to $100,000 a year.

BACKGROUND

The United States has participated in the activities of ICSU since 1919 when the Council was originally organized. From 1935, when the Department of State was first authorized to defray the annual U.S. dues to the ICSU, until 1958 the legislative ceiling on U.S. contributions was $9,000 a year. The new ceiling of $65,000 a year enacted by Congress that year is now insufficient and the executive branch requested its removal in draft legislation submitted on May 17, 1965.

WHAT THE ICSU DOES

The ICSU's principal function is the coordination of the international scientific effort and the carrying out of scientific activities which are of an international character. More specifically, the ICSU organizes and coordinates scientific meetings; establishes

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internationally agreed standards, units, and nomenclature to insure meaningful international communications, cooperation, and comparison of results; disseminates scientific information; and plans and coordinates international collaborative programs, such as the International Geophysical Year of a few years ago and the International Years of the Quiet Sun now underway.

The 14 associated unions composing ICSU are:

International Astronomical Union (IAU).
International Union of Biochemistry (IUB).
International Union of Biological Sciences (IUBS).
International Union of Pure and Applied Chemistry (IUPAC).
International Union of Crystallography (IUCr).
International Geographical Union (IGU).
International Union of Geodesy and Geophysics (IUGG).
International Union of Geological Sciences (IUGS).
International Union of the History and Philosophy of Science (IUHPS).
International Mathematical Union (IMU).
International Union of Pure and Applied Physics (IUPAP).
International Union of Physiological Sciences (IUPS).
International Scientific Radio Union (URSI).
International Union of Theoretical and Applied Mechanics (IUTAM).

As can be deduced from their names, these unions deal with basic scientific information and not with technology or hardware.

In recent years, scientific activities on an international scale have increased greatly resulting in a dues revision by certain of these unions.

ICSU FINANCES

In addition to the 14 associated unions, ICSU has 57 national members, including the United States. Both union and national members contribute to ICSU. In addition each government contributes to each of the associated unions. The following table gives U.S. contributions to ICSU and its member unions.

U.S. dues to ICSU and its unions for the years 1958–65

	1958	1959	1960	1961	1962	1963	1964	1965
ICSU	$7,800	$7,800	$7,800	$7,800	$8,400	$16,800	$16,800	$16,800
IAU	1,307	1,307	1,307	1,307	1,568	1,568	1,568	2,743
IUB	200	400	400	400	400	400	400	600
IUBS	2,334	2,334	2,334	2,334	5,000	5,000	5,000	5,000
IUPAC	1,300	1,300	1,300	10,000	10,000	10,000	25,000	25,000
IUCr	900	900	900	900	900	900	900	900
IUGG	4,200	4,200	4,200	13,440	13,440	13,440	13,440	13,440
IGU	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
IUHPS	400	400	800	800	800	1,200	1,200	1,200
IMU	522	522	522	522	522	783	783	783
IUTAM [1]	400	400	400	840	840	840	840	840
IUPAP	1,680	1,680	1,680	2,280	2,280	2,280	2,280	2,280
IUPS	250	250	500	500	500	500	500	500
URSI	4,000	4,000	4,000	4,000	4,000	4,000	4,800	4,800
IUGS					2,250	2,250	2,250	2,250
Total	26,792	26,993	27,643	46,623	52,400	61,461	77,261	78,636
Total paid by other countries	227,036	211,633	207,367	259,990	309,440	473,000	(estimate)	

[1] NOTE.—Adherence to the International Union of Theoretical and Applied Mechanics (IUTAM) and payments of its annual dues is achieved by a U.S. National Committee organized outside the framework of the Academy-Research Council. This information is provided for the sake of completeness in order to show the dues to all unions constituting the ICSU. The National Committee of IUTAM has applied to come under the organizational structure of the NAS–NRC. Therefore, it is expected that the NAS–NRC will adhere to IUTAM as it adheres to the other unions of ICSU and that the Department of State will be requested to pay the dues to this union as well.

Since these dues vary, the U.S. percentage has varied over the years, but the average for the period 1952–62 was 13 percent of total contributions.

It will be noted from the above table that the ceiling of $65,000 a year on U.S. contributions is no longer adequate for calendar years 1964 and 1965.

The latest available statement of income and expenditures follows:

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31 DECEMBER, 1963

Previous Year					
$	$	$		$	$	$
			INCOME			
			Annual Dues Received:			
	68,890		National Members	115,180		
	5,019		Member Unions	5,859		
73,909					121,039	
2,800			Part of Grant of $8,400 from the Royal Society of London ..		—	
2,651			Bank Interest and Profit on Exchange (net)		2,384	
			Dues from Scientific and Special Committees:			
	335		SCOR	360		
	280		SCAR	360		
	1,487		COSPAR	1,742		
	263		IQSY	614		
	2,365				3,076	
81,725						126,499
			EXPENDITURE			
			Expenses of Meetings:			
	—		General Assembly	20,893		
	10,328		Executive Board	—		
	2,391		Bureau	3,302		
	1,273		Other Meetings	2,458		
13,992					26,653	
—			Grant to ICSU Abstracting Board		5,000	
—			Expenditure on ICSU Review (net)	7,302		
			Less Balance of Fund at 1 Jan. 1963	3,000		
					4,302	
			Administrative Expenses:			
	35,780		Staff Salaries, etc.	35,626		
	3,492		Travel and Subsistence	3,220		
	3,672		Travelling Expenses of ICSU Representatives at Meetings of other Scientific Bodies	3,442		
	735		Representation	985		
	1,320		Secretarial Expenses of Officers of the Council	1,016		
	1,936		Printing of Year Book, etc. ..	7,495		
	3,000		Purchase of 1,500 copies of the ICSU Review	3,000		
	2,732		Audit Fee and Expenses	3,458		
	2,704		Office Furniture and Equipment ..	2,552		
	4,501		Removal Expenses	—		
	7,065		General Office Expenses	11,048		
66,937					71,842	
80,929						107,797
$796			EXCESS OF INCOME OVER EXPENDITURE FOR YEAR			$18,702

BALANCE SHEET

as at

31 DECEMBER, 1963

As at 31st December, 1962						
$	$	$		$	$	$
			ASSETS			
	93,262		Cash and Treasury Bills		112,649	
	17,863		Amount on Deposit with the Perpetual Building Association ..		18,774	
	40,115		Sundry Debtors		48,461	
151,240						179,884
			Less LIABILITIES			
			Balance to be accounted for in respect of the allocation to ICSU itself from the UNESCO Subvention:			
		226	JCAR	—		
		2,880	IUCAF	2,654		
		—	FAGS	243		
	3,106				2,897	
			Funds belonging to Subsidiary Organizations:			
		15,332	FAGS	15,332		
		21,612	SCOR	17,579		
		1,658	SCAR	1,418		
		32,492	COSPAR	43,788		
		621	CIG	2,388		
		4,128	IQSY	5,728		
		15,000	IUCAF	16,500		
		2,202	IBP	1,699		
		3,000	ICSU Review Fund	—		
		—	JCAR	633		
		—	IUCST	372		
	91,487				95,785	
	22,250		Sundry Creditors		45,353	
116,843						144,035
34,397						35,849
			Represented by:			
	10,530		ICSU Special Fund		8,530	
			Less ICSU Working Capital Fund: Loans outstanding at 31 December, 1963	32,750		
			Deduct amount of Fund ..	27,800		
					4,950	
					3,580	
		27,800	ICSU Working Capital Fund ..			
		16,500	*Less* Loans outstanding at 31 December			
	11,300				—	
	—		Special Fund for MAC		1,000	
			ICSU Free Balance:			
		11,771	As at 1 January, 1963	12,567		
		796	*Add* Excess of Income over Expenditure during the year ..	18,702		
	12,567		As at 31 December, 1963		31,269	
34,397						35,849

The ICSU has a small secretariat of six people, three professional men and three secretaries, whose combined salaries in 1963 amounted to $35,626. With one exception, none of the associated unions have any secretariat. In fact, the principal witness before the subcommittee testified that "if we have a complaint with ICSU and its 14 constituent unions it is that they do not have adequate administrative support."

COMMITTEE ACTION AND RECOMMENDATION

S. 2031, containing the administration recommendation, was introduced by Mr. Fulbright (by request) on May 25, 1965. On June 21 the House of Representatives passed H.R. 8862, which in lieu of removing the ceiling, raised it from $65,000 to $100,000 a year. Both these bills were considered by a subcommittee composed of Senator Church, chairman, and Senators Clark and Carlson at a public hearing on June 30, at which Mr. Edmund Rowan, head, Section on International Organizations and Programs, Office of the Foreign Secretary, National Academy of Sciences, testified. This hearing is printed as an appendix to the report.

On July 20, 1965, the subcommittee reported H.R. 8862 favorably to the full committee which in turn endorsed the report of the subcommittee.

The subcommittee and the full committee have not generally favored open end authorizations and for this reason the formula set forth in H.R. 8862 was preferred. The new $100,000 ceiling on U.S. annual contributions will permit the International Council of Scientific Unions and its associated unions to continue their orderly growth and at the same time permit the Congress of the United States to review this growth at a time, estimated to be in 1968, when U.S. dues will have risen beyond the ceiling.

In determining whether continued U.S. participation, which carries with it the obligation to pay the assessed dues, is in the interest of the U.S. Government, the subcommittee had to rely on the testimony of competent witnesses. In submitting this legislation, the Department of State voiced its conviction that "continued support of ICSU and its associated unions by the United States is vital to the scientific interest of this country." The witness for the National Academy of Sciences-National Research Council, through which the United States exercises its membership, stated that "we are rather enthusiastic about this complex of international scientific organizations and think we get more than our money's worth * * *." And Mr. Daniel M. Singer, general counsel of the Federation of American Scientists, wrote: "Although the sums of money involved are not substantial, we think it none the less important that the United States be clearly on record as wholeheartedly supporting the activities of these international scientific bodies." There is no known opposition to this request.

The Committee on Foreign Relations therefore favorably reports H.R. 8862 and recommends that the Senate pass it without amendment.

CHANGES IN EXISTING LAW

In compliance with subsection 4 of rule XXIX of the Standing Rules of the Senate, changes in existing law made by the bill, as reported, are shown as follows (existing law proposed to be omitted is enclosed in black brackets, new matter is printed in italic, existing law in which no change is proposed is shown in roman):

ACT OF AUGUST 7, 1935

(Public Law 253, 74th Cong.)

AN ACT To authorize appropriations to pay the annual share of the United States as an adhering member of the International Council of Scientific Unions and Associated Unions

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That there is hereby authorized to be appropriated, to be expended under the direction of the Secretary of State, in paying the annual share of the United States as an adhering member of the International Council of Scientific Unions and Associated Unions, including the International Astronomical Union, International Union of Chemistry, International Union of Geodesy and Geophysics, International Union of Mathematics, International Scientific Radio Union, International Union of Physics, and International Geographical Union, and such other international scientific unions as the Secretary of State may designate, such sum as may be necessary for the payment of such annual share, not to exceed [$65,000] *$100,000* in any one year.

APPENDIX

CONTRIBUTIONS TO THE INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS

WEDNESDAY, JUNE 30, 1965

U.S. SENATE,
SUBCOMMITTEE OF THE
COMMITTEE ON FOREIGN RELATIONS,
Washington, D.C.

The subcommittee met, pursuant to notice, at 10:05 a.m., in room 4221, New Senate Office Building, Senator Frank Church presiding.

Present: Senators Church and Clark.

Senator CHURCH. The hearing will come to order.

This subcommittee is meeting this morning to take testimony on two administration proposals, S. 2031 and H.R. 8862, concerning U.S. contributions to the International Council of Scientific Unions and certain associated unions (ICSU), and S. 2072, authorizing a U.S. contribution to the International Committee of the Red Cross.

On the first item the principal witness is Mr. Edmund Rowan, head of the Section on International Organizations and Programs in the Office of the Foreign Secretary of the National Academy of Sciences.

Before Mr. Rowan starts, I would like to insert in the record a copy of the bill a letter in support of S. 2031 from the Federation of American Scientists.

(The matters referred to follow:)

[S. 2031, 89th Cong., 1st sess.]

A BILL To amend the Act of Congress approved August 7, 1935 (Public Law 253), as amended, concerning United States contributions to the International Council of Scientific Unions and certain associated unions

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That Public Law 253, Seventy-fourth Congress, as amended by Public Law 627, Eighty-fifth Congress, is hereby further amended by striking the words "such annual share, not to exceed $65,000 in any one year," and inserting in lieu thereof the words "the United States annual share".

[H.R. 8862, 89th Cong., 1st sess.]

AN ACT To amend the Act of August 7, 1935, to increase the authorized annual share of the United States as an adhering member of the International Council of Scientific Unions and Associated Unions

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Act of August 7, 1935 (22 U.S.C. 274), is amended by striking out "$65,000" and inserting in lieu thereof "$100,000".

Passed the House of Representative June 21, 1965.

Attest:

RALPH R. ROBERTS,
Clerk.

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FEDERATION OF AMERICAN SCIENTISTS,
Washington, D.C., June 21, 1965.

Re S. 2031.

Hon. J. W. FULBRIGHT,
Chairman, Senate Foreign Relations Committee,
U.S. Senate, Washington, D.C.

MY DEAR SENATOR FULBRIGHT: We are writing to express our support of S. 2031, a bill to remove the authorization ceiling for appropriations to cover the annual U.S. contribution to the constituent organizations of the International Council of Scientific Unions (ICSU).

The ICSU has been the primary organ for international cooperation in science since 1919, promoting exchanges and orginating programs which have been of benefit to the United States and to science the world over. The Council and the member unions commend the respect and cooperation of scientists in every nation. International cooperation has long been a tradition among scientists. Encouragement of this tradition and generous support of ICSU will be a credit to our country and will bring nearer the time when international cooperation will be the tradition in all areas of society.

Although the sums of money involved are not substantial, we think it none the less important that the United States be clearly on record as wholeheartedly supporting the activities of these international scientific bodies.

We would appreciate your placing this statement in the record of such hearings as may be held on the legislation.

Yours very sincerely,

DANIEL M. SINGER, *General Counsel.*

Senator CHURCH. Mr. Rowan, good morning.

Mr. ROWAN. Thank you very much.

Senator CHURCH. I am pleased to welcome you to the committee this morning. I understand you will present a statement on behalf of Dr. Frederick Seitz, the President of the National Academy of Sciences.

STATEMENT OF DR. FREDERICK SEITZ, PRESIDENT OF THE NATIONAL ACADEMY OF SCIENCES, AS PRESENTED BY EDMUND C. ROWAN, OFFICE OF THE FOREIGN SECRETARY, NATIONAL ACADEMY OF SCIENCES; ACCOMPANIED BY SIDNEY S. CUMMINS, BUREAU OF INTERNATIONAL ORGANIZATION AFFAIRS, DEPARTMENT OF STATE; AND WALTER M. RUDOLPH, INTERNATIONAL SCIENTIFIC AND TECHNOLOGICAL AFFAIRS, DEPARTMENT OF STATE

Mr. ROWAN. Yes, sir; in fact, I would like to begin by an apology on behalf of President Seitz that he could not be here for this hearing. He has had a longstanding obligation to testify before another congressional committee at this very hour. It would also be natural for the Academy's Foreign Secretary, Dr. Harrison Brown, to testify before this committee. Unfortunately Dr. Brown at the moment is in Latin America.

Before proceeding to read Dr. Seitz' statement I would like to introduce the colleagues from the Department of State who are with me.

Mr. Sidney Cummins from the Office of International Administration, Mr. Walter Rudolph from the Office of International Scientific and Technological Affairs.

I have, Mr. Chairman, and I believe you have before you, a biographic statement on Dr. Frederick Seitz, President of the National Academy of Sciences. I would be happy to point out a few of the

highlights. He received his Ph. D. in physics at Princeton University, served as a research physicist with the General Electric Co. and was an associate professor of physics at the University of Pennsylvania. He became chairman of the physics department at the Carnegie Institute of Technology, and on September 1, 1964, he became dean of the graduate college and vice president for research of the University of Illinois.

Dr. Seitz has authorized many scientific publications. He has served as the science adviser to the North Atlantic Treaty Organization and is now a member of the President's Science Advisory Committee. He is also a member of the Defense Science Board of the Department of Defense.

In his professional capacity, Dr. Seitz serves as a vice president of the International Union of Pure and Applied Physics, one of the Unions constituting the International Council of Scientific Unions which we are discussing today. He has been president of the American Physical Society, and he is a member of the board of trustees of the Rockefeller Foundation.

If I may, sir, I would now begin reading Dr. Seitz' statement.

Senator CHURCH. Yes.

I might suggest that if you would care to highlight the statement for us we would include the whole text in the record so that we might be saving in time this morning since we do have some other matters to take up.

Mr. ROWAN. Yes; I am quite prepared to do that.

Senator CLARK. Will the Senator yield?

I will say to Mr. Rowan that Senator Church and I are generally familiar with this matter, having had informal conversations with Dr. Harrison Brown about it and I don't think you really need to labor the point much because your statement will be printed in full in the record, and I think you can make your statement quite brief without prejudicing your case in any way.

Mr. ROWAN. All right, sir. We will try it that way.

This is Dr. Seitz' statement excerpted.

BACKGROUND OF NATIONAL ACADEMY OF SCIENCES

On behalf of my fellow officers and members of the National Academy of Sciences, I would like to express my appreciation for the opportunity to address your committee on the subject of the International Council of Scientific Unions, its constituent unions and U.S. participation in these bodies. As you may know, the Academy was created in 1863 under a charter of the U.S. Congress for the purpose of providing advice to the Government.

In this respect I would like to invite your attention to an appendix on the last page of the brief before you giving a fuller description of the National Academy of Sciences and I would also refer to an Executive order signed by President Wilson in 1918 asking the National Academy of Sciences and its subsidiary, the National Research Council to perform certain services including to promote cooperation and research at home and abroad in order to secure concentration of effort.

Senator CHURCH. Can I interrupt you for just a moment, sir?

Mr. ROWAN. Yes, sir.

POSITION ON A CEILING ON CONTRIBUTIONS

Senator CHURCH. The State Department wants this ceiling removed. The House put $100,000 ceiling on it raising it from $65,000. What is wrong with the House result? Why isn't the $100,000 enough vor you? It is a little difficult to get these ceilings removed.

Would your group be satisfied with a ceiling of $100,000 or do you think it is inadequate?

Mr. ROWAN. Well, Mr. Senator, I think the long and short of it is that we would be satisfied. It would mean coming back to your committee, I think, in 1968, which we are, of course, pleased to do.

Senator CHURCH. Thank you, sir.

The hundred thousand dollar ceiling, I take it, would be adequate for the next several years?

Mr. ROWAN. It would, according to projections which we show you here. We believe that that figure would be reached about 1968. We don't like to find ourselves in the position of being in arrears in dues, so it might be prudent to ask that legislation be introduced again in 1967. But as I say, we are rather enthusiastic about this complex of international scientific organizations and think we get more than our money's worth. We are very happy to come to testify before a congressional committee about these organizations at any time.

EXCHANGE OF SCIENTIFIC INFORMATION

Senator CHURCH. The fact that a Czech national, Prof. D. Blaskovic, is Secretary General of the ICSU, raises the question of exchanges of scientific information. How freely do the Communists participate in scientific meetings sponsored by the ICSU and do they give as good as they get at these meetings?

Mr. ROWAN. The last part of that is a very difficult overall evaluation at this point; who gets the most out of it.

I think it is important to recognize that these organizations do not deal with hardware, do not deal with technology; they deal with basic scientific information.

Senator CHURCH. Yes.

Mr. ROWAN. And I think it has been established fairly surely down through the years that there is no such thing as keeping basic scientific information secret. It happens often that when the state of the art is ready the same development will occur independently in several countries within a matter of a year or so.

The first part of your question, Mr. Chairman; national prestige is involved in these organizations and I think the scientists from all countries try to put their best foot forward. This means if there is not a security consideration the scientists from all countries try to present their best work. This certainly is our experience with respect to participants from Eastern Europe.

SPACE SCIENCES AND ICSU

Senator CHURCH. Does the ICSU have anything to do with space sciences? Do any of these conferences deal with that question?

Mr. ROWAN. Yes; it does.

The International Council of Scientific Unions, as you know from the statement, is a composite of some 14 individual and autonomous

scientific unions each in a different discipline like physics, chemistry, mathematics, crystallography, and so on. The International Council of Scientific Unions is therefore in an ideal position to undertake enterprises which are international and interdisciplinary in character; space is one such. The International Council of Scientific Unions, which we abbreviate as ICSU, has created a Committee on Space Research which is called COSPAR.

COSPAR has approximately 30 members now, and its task is to suggest scientific experiments that can best be conducted through the use of rockets and satellites. Needless to say it is not an operating organization itself. It does not itself send up rockets. Rather it coordinates the sending up of rockets from various countries so that synoptic readings can be obtained for the benefit of scientists in all countries.

I think it is important in this respect, sir, to point out that COSPAR is not concerned with technical problems such as propulsion, construction of rockets and satellites. Rather, it is concerned with the basic science which these tools can help to develop.

DUES STRUCTURE OF ICSU

Senator CLARK. As I understand it, many of these constituent organizations assess dues as an organization or are individual people paying dues?

Mr. ROWAN. Your first suggestion, Mr. Senator, is correct. Each union establishes a series of dues categories. The members of that union, and the member in each case is a scientific institution in a country, preferably nongovernmental——

Senator CHURCH. How much of this money, so far as the U.S. participation is concerned, would be governmental.

Mr. ROWAN. All of the funds, if I understand your question. The total dues to ICSU and its 14 constituent unions, actually 13 because 1 union has dues paid by a private organization, come from U.S. governmental sources.

Senator CLARK. And have for how long?

Mr. ROWAN. Since 1935 when Representative Sol Bloom introduced legislation to enable the Department of State to meet these annual dues contributions.

THE INTERNATIONAL YEARS OF THE QUIET SUN

Senator CLARK. I am looking at this table attached to your prepared statement which gives the symbols and the identification of the constituent organizations. I must say some of them raise an eyebrow on my part.

What is IQSY—the International Years of Quiet Sun? Is this a Chinese fraternity?

Mr. ROWAN. Well, the initials do suggest that. As you recall, the International Geophysical Year was a huge success and it purposely was conducted at a time of maximum solar activity, and a good number of the observations in the IGY were on solar related phenomena.

Now the sun is at a period of minimum solar activity. The scientists concerned felt it was highly desirable to take advantage of this particular year to repeat some of the same observations with respect

to solar-related phenomena, not with respect to everything in geophysics but solar-related phenomena, so that these data could be compared with the data collected under the IGY at a period of maximum solar activity. The influence of minimum and maximum solar activity are being compared.

Senator CLARK. And, therefore, you created a different scientific organization to do the research in that particular area?

Mr. ROWAN. Well, sir, as we indicate in the prepared statement when ICSU undertakes an activity like this, it puts together a committee drawing scientists from the various unions such as those of Geodesy and Geophysics, Physics, and Astronomy, and adds to them scientists from the leading countries who are interested in this area. Then that committee has a life duration just for that project.

This Committee on the International Quiet Sun Year will be dissolved after this year is over.

Senator CLARK. Does it charge dues and does part of this money pay those dues?

Mr. ROWAN. There are voluntary dues payable to some of these semiseparate activities such as the Quiet Sun Year, and these dues are not included in this chart. The funds that go to the International Council of Scientific Unions very often help to get one of these specialized projects, or international collaborative programs started. If that program is going to become one of such dimensions that it will require separate financing, then separate financing is sought.

HOW ICSU OPERATIONS ARE FINANCED

Senator CHURCH. I take it the money involved here is primarily to enable American scientific participation in these various conclaves that are held internationally; is that right?

Mr. ROWAN. No, sir; not quite. The funds which are requested here are the U.S. share of the international expenses. There is a small international secretariat.

Senator CHURCH. I see. Where does the additional money come from to finance the actual American participation in these meetings when they occur?

Mr. ROWAN. It depends on just what the enterprise is. In the International Geophysical Year, as you probably know, the task of ICSU was to design the program and to coordinate it internationally so that all countries would be submitting their data in comparable form and so on. But the participation of each country was the financial responsibility of that country. In the United States, of course, a fair amount of funds came through the National Science Foundation, but the U.S. Navy, for example, contributed much in the way of logistic support for the operations.

ICSU SECRETARIAT

Senator CHURCH. How large a secretariat does ICSU have? Let's make that a two-prong question.

What proportion of its budget goes for administrative expenses?

Mr. ROWAN. The exact figure is in the financial report which we have made available to you actually as an appendix. The amount

that goes before the secretariat is in the order of $36,000 a year. There are about six people, about three professional men and three secretaries on the secretariat.

Senator CHURCH. What part of the total cost for maintaining the Secretariat is borne by the United States?

Mr. ROWAN. The United States, Mr. Chairman, over the last few years, has paid a total of 13 percent of all of the dues to ICSU and the unions, contrasted with our contributions of something like 30 percent to the U.N. family and 66 percent to the Organization of American States. So the fair answer to your question is that the United States would be contributing 13 percent to the cost of maintaining the secretariat.

I might say in this regard, Mr. Chairman, that if we on the U.S. side have a complaint with regard to ICSU and its 14 constituent unions, it is that they do not have adequate administrative support. ICSU itself has this small secretariat which I mentioned but of the 14 unions there is only 1 union, a very large and very important one, the Union of Pure and Applied Chemistry which itself has a paid secretariat. So most of these organizations have no paid staff at all, and this is something we think in the long run should be remedied for the more efficient operation of these bodies.

HOW IS THE U.S. CONTRIBUTION DETERMINED

Senator CHURCH. Is the amount of the American contribution fixed by agreement? Is 13 percent a formula that has been agreed to by all the participants?

Mr. ROWAN. It is not really a formula. I would be happy to describe to you how the U.S. dues to each of these 15 bodies, ICSU and 14 others is arrived at.

I am afraid, if we press for any particular formula such as one related to gross national product, scientific productivity, number of Ph. D.'s in science in a country, or a percentage of the research dollar, that the United States would be paying twice or three times the proportion of the dues it now pays.

Senator CHURCH. Have we customarily paid about this percentage, 13 percent?

Mr. ROWAN. Yes, sir; it has been up and down slightly.

Senator CHURCH. How much do the Russians pay?

Mr. ROWAN. I have not calculated the percentage of the Russian contribution, but I think I can characterize it for you.

The United States, quite appropriately we feel, as the leading scientific country in the world, is in the top-dues category for each of these organizations. Even with that our overall contribution still is 13 percent. The Royal Society in London is also in the top-dues category with us, in each organization.

The Soviet Union entered these organizations rather late. Apparently a policy decision was made some place about 1953, and since then they have taken up membership in all of these bodies and have participated rather vigorously. The Soviet Union in some individual unions is in the top-dues category. In other cases it is in a next to the top-dues category.

UNION OF CRYSTALLOGRAPHY

Senator CLARK. To relieve my ignorance, what is the International Union of Crystallography?

Mr. ROWAN. I ought to be able to answer that because I just came from a meeting of the U.S. National Committee for the International Union of Crystallography. The Union is indeed a specialized one. It concerns itself with crystalline structure. The crystals in a substance, as you probably know, take on various geometric designs with different spaces between the elements. By X–ray and now by electron diffraction of these crystalline elements, one is able to tell the actual physical structure of these crystals. Of course, this whole topic is one which is related to the development of transistors at Bell Labs a few years ago.

Senator CLARK. Forty years ago when I was in school this used to be a department of physics?

Mr. ROWAN. I think that many people would agree that crystallography is a subsection of physics.

As a matter of fact, the Crystallography and Physics Unions are jointly sponsoring a symposium on electron diffraction of crystals in Melbourne next month. The President of our Academy, Dr. Seitz, will participate in it.

COMMUNIST CHINESE PARTICIPATION

Senator CLARK. Do you have any Chinese Communist participation in any of these international unions?

Mr. ROWAN. Until a few years ago the mainland Chinese were formal members of a few of these organizations. But these organizations have a policy of universal adherence. If there is a group of scientists any place, whether in a country or in any geographic territory that is scientifically competent, they can join.

For reasons which I guess are best known to the mainland Chinese themselves, and which we can only guess about, as soon as the Nationalist Chinese on Taiwan take up membership in these organizations, the mainland Chinese promptly resign.

Senator CLARK. Are there any of them left?

Mr. ROWAN. Yes; but it is a hollow membership. As far as I know, the mainland Chinese are still members of the Division of the History of Science of the International Union of the History and Philosophy of Science, which is going to meet in Warsaw in August. One of the things we are interested in seeing is whether they show up.

Senator CLARK. I suppose they don't pay any dues.

Mr. ROWAN. I am sorry, I can't answer that. A little research would reveal it. There are provisions within these organizations that if members fail to pay dues for varying numbers of years, they are subject to losing their vote and losing their membership.

Senator CHURCH. Article 19. [Laughter.]

LOGISTICS SUPPORT BY ICSU MEMBERS

You mentioned, Mr. Rowan, that the U.S. Navy and other U.S. forces have given logistics support to some of these projects in the past. These costs, of course, don't show up here.

To what extent has this kind of support been forthcoming from other participating countries?

Mr. ROWAN. Well, of course, the Navy's support was essentially a logistics support, to get large numbers of scientists and equipment and supporting personnel to Antarctica.

Senator CHURCH. Yes.

Mr. ROWAN. We know that other countries ended up with large numbers of scientists and supporting personnel in Antarctica for the IGY, the French, the British, and the Russians. Presumably it cost them comparable amounts to accomplish this.

Senator CHURCH. I am going to place in the record the resolution in support of this legislation which we have received from the National Academy of Sciences, and the full statement of Dr. Frederick Seitz which you, Mr. Rowan, have summarized in your testimony this morning together, of course, with the appendix that is attached.

(The information referred to follows:)

RESOLUTION OF NATIONAL ACADEMY OF SCIENCES-NATIONAL RESEARCH COUNCIL

Whereas it is in the national interest of the United States to continue to occupy a leading position in the world councils of science; and

Whereas a major instrument through which the United States can participate in the planning, conduct, and communication of international scientific programs of direct interest and importance to this Nation is the International Council of Scientific Unions and its member unions; and

Whereas the activities of these bodies have greatly increased in recent years; and

Whereas the U.S. Department of State does not now have authorization adequate to meet the membership dues established by these organizations; and

Whereas continued reasonable increases in dues can be expected in the years ahead: Be it

Resolved, That the Congress of the United States again be advised of the need to eliminate the legislative ceiling on dues for membership in ICSU and its constituent unions or by other legislative action to achieve this objective.

STATEMENT BY DR. FREDERICK SEITZ, PRESIDENT OF THE NATIONAL ACADEMY OF SCIENCES

Mr. Chairman and members of the committee, on behalf of my fellow officers and members of the National Academy of Sciences, I would like to express my appreciation for the opportunity to address your committee on the subject of the International Council of Scientific Unions, its constituent unions, and U.S. participation in these bodies. As you may know, the Academy was created in 1863 under a charter of the U.S. Congress for the purpose of providing advice to the Government.

I would like to preface my statement by saying that the Foreign Secretary of the Academy, Dr. Harrison Brown, testified on this same topic before a subcommittee of the House Foreign Affairs Committee earlier this month. I know that copies of his statement also have been made available to your committee.

INTRODUCTION

The International Council of Scientific Unions, or ICSU, as it frequently is called, was originally organized in 1919 as the International Research Council and received its present name as a result of a reorganization in 1931. ICSU has as its principal function the coordination of international scientific effort and the carrying out of scientific activities which are international in character. It is composed of 14 autonomous international scientific unions covering the fields of pure and applied physics, biological sciences, pure and applied chemistry, mathematics, physiology, biochemistry, geography, geology, geodesy and geophysics, astronomy, crystallography, scientific radio, pure and applied mechanics, and the history and philosophy of science. Some of these unions are actually groupings of semiautonomous organizations. For example, the International Union

of Geodesy and Geophysics consists of seven international associations in the fields of geodesy, seismology, meteorology, geomagnetism, oceanography, hydrology, and volcanology. Presently there are two additional unions, relating to nutritional sciences and biophysics, whose applications for membership to ICSU are likely to be acted upon favorably in the near future. Each union is concerned not only with the study of its individual discipline, but with facilitating relations among scientists where international cooperation is necessary or desirable.

In addition to its 14 international scientific unions, ICSU also has 57 national members, each of which is a leading national scientific institution, nongovernmental if possible, which can broadly represent scientists in a country or other geographic area. The National Academy of Sciences-National Research Council is a member of ICSU on behalf of the scientists of the United States. The individual scientific unions also have national members which may be either the same scientific institutions holding membership in ICSU or others. For all of the unions in ICSU with the exception of one, the NAS–NRC effects U.S. participation.

ACTIVITIES OF THE INTERNATIONAL SCIENTIFIC UNIONS AND ICSU

The principal activities of the unions fall into four primary categories. The first of these is the advancement of science through the organization and coordination of scientific meetings. From the beginning, scientific meetings were held to permit personal contact and exchange of information among scientists, as well as to foster dissemination of the methods and results of work carried out in their respective countries. As the numbers and frequency of these sessions increased, scientific unions had as one of their earliest tasks the coordination of international meetings to avoid unintentional duplication and to insure continuity of planning and cooperation from one congress to the next. Indeed, almost without exception, the scientific congresses predated formation of the unions themselves. In organizing such meetings, the scientists who make up these nongovernmental scientific unions decide what aspect of their discipline can best benefit from the stimulation and cross-fertilization of thought which occurs at congresses, symposia, and colloquia. Face-to-face exchange of scientific thought, comparison of hypotheses, and explanation, and in many cases criticism, of experimental results long have been recognized as essential to the innovative and creative progress of science. I might add that the International Union of Pure and Applied Physics—being a vice president of the union I am most familiar with its activities—has recommended that delegations attending international conferences sponsored by the union include some younger scientists in addition to leading scientists in the particular field to provide continuity in the growth of close international contacts between physicists.

A second major activity of the unions is the establishment of internationally agreed standards, units, and nomenclature to insure meaningful international communication, cooperation, and comparison of results. For example, the chemistry union is concerned with both academic and industrial aspects of chemistry for which international agreement or uniform practice is desirable. The union has issued, among others, a manual of physicochemical symbols and terminology, manuals on nomenclature of inorganic chemistry, and has calculated new tables for atomic weights in cooperation with the physics union. The unions concerned with the life sciences and geological sciences also have similar programs.

The orderly and rapid dissemination of new scientific information may be considered as the third fundamental activity of the international scientific unions. Not only do the large congresses and the many smaller, specialized colloquia and symposia sponsored by the ICSU unions provide means for exchange of information, but each of the unions has extensive publication programs. For example, the physics union, in addition to the regular information circulars issued by its secretariat, contributes to the publication of the activities of its many commissions as well as publication of the proceedings and discussions of its scientific meetings.

A fourth and more recent addition to the list of important activities of the international scientific unions is the international collaborative program. It will be seen from the chart which I have brought with me that the ICSU mechanism for planning and coordinating international interdisciplinary collaborative programs is a scientific committee which has represented in its membership scientists from various unions as well as countries which might be expected to participate. The International Geophysical Year, IGY, which ICSU launched a few years ago, was a highly successful program in which 67 countries made a variety of synoptic global observations of certain geophysical phenomena at more than 2,000 observing stations, 57 of which were in the Antarctic. The success of the

IGY led to the establishment by ICSU of a number of new committees to continue and extend the work. The International Geophysical Committee has arranged for the continuation of the three World Data Centers, one in the United States, one in the Soviet Union, and the third in Europe and Japan, where the geophysical data collected during the IGY is made available to the working scientist.

To extend the work done in Antarctica, ICSU established a Scientific Committee on Antarctic Research. In fact, the Antarctic Treaty, suspending all territorial claims in the area for 33 years, was signed by the nations involved in scientific work in Antarctica through the IGY and SCAR.

Another descendant of the IGY, the Committee on Space Research (Cospar), is concerned with furthering on an international scale the progress of all kinds of scientific investigations which are carried out with the use of rockets or rocket-propelled vehicles. Cospar is not concerned with such technological problems as propulsion, construction of rockets or manned space flights. Ten of the ICSU unions and 30 of the ICSU national members are affiliated with Cospar.

A number of the ICSU unions are presently involved in planning for an upper mantle project which will be designed to explore the outer 1,000 kilometers of the earth's crust to increase our understanding, for example, of earthquakes and volcanoes.

Through its Scientific Committee on Oceanic Research, ICSU has been exploring the oceans, studying all aspects of physical and biological oceanography. SCOR also acts as the principal scientific adviser to the Intergovernmental Oceanographic Commission.

Currently we are in the midst of a program known as the International Years of the Quiet Sun which is repeating a number of the observations of solar related phenomena made during the IGY and thereby contrasting the present period of minimum solar activity with the previous period of maximum activity.

Planning is underway for a program of internationally coordinated studies directed toward solving the growing problem of adequate fresh water resources. Toward this end, ICSU has established a Committee on Water Research to advise UNESCO on the scientific aspects of the International Hydrological Decade. An international program in atmospheric sciences, complementary to that of the World Meteorological Organization, will be undertaken to increase our understanding of the weather-producing lower atmosphere. The economic implications of this program alone eventually will reach into the billions of dollars.

Although global synoptic observations generally are unnecessary for biological studies, biologists have encountered several problems which can benefit substantially from an international collaborative effort. Recognizing the increasing requirements of the world's growing population, biologists in ICSU are outlining an international biological program which is designed to establish the biological basis of productivity of terrestrial, fresh water, and marine communities, as well as human adaptability to changing conditions and the management of biological resources. Scientifically based knowledge of the ability of the food production of the ability of the food production of the earth to support expanding human population will become a vital consideration in future legislative deliberations.

Most of these collaborative programs are interdisciplinary as well as international in character. Therefore, ICSU provides a natural aegis for these activities in that its members are both international scientific unions in individual disciplines, and national scientific institutions in various countries.

ICSU, its member unions and various committees provide advisory services on a wide range of subjects to various U.N. agencies including the International Telecommunications Union, the World Meteorological Organization, UNESCO, the Food and Agriculture Organization, and the World Health Organization.

STRUCTURE

Rather than describing the structure of each of the 14 autonomous scientific unions, I think it would be preferable to briefly outline the organization of features which these bodies hold in common. Each union has a democratic foundation in that ultimate authority rests in a general assembly, consisting of a specified number of voting delegates from member scientific institutions in each country. Typically, the General Assembly meets every third year. The principal managerial decisions for the union are made by the General Assembly, including: which fields should be the subjects of symposia, in which countries its various scientific meetings should be held, and other matters of this nature. The work of the union is conducted through the various commissions which its establishes for particular scientific purposes. For example, the International Union of Pure

and Applied Physics has working commissions on acoustics, semiconductors, solid-state physics, of which I am a member, high-energy nuclear physics, spectroscopy, and others. You will find all these commissions, sections, and divisions of all the unions listed in the "ICSU Yearbook for 1965."

The organization of ICSU itself is also democratic in character, involving proposals, discussion, with issues finally decided by majority vote. As may be seen on the chart, which is similar to the one attached as an annex to this report, the General Assembly of ICSU is composed of representatives of the member scientific unions as well as representatives of national members; that is, scientific institutions in various countries. The statutes of ICSU, which are contained in the 1965 Year Book beginning on page 53, provide that the principal executive power rests in the hands of the President, who currently is Prof. H. W. Thompson, of Oxford University. As in the case of the individual unions, the General Assembly of ICSU decides upon the scientific programs which ICSU will pursue. These decisions are of substantial importance to the United States and other scientifically advanced countries and increasingly so to the developing countries.

FINANCES

We are now in a position to examine the finances of ICSU and its constituent unions and the U.S. dues subscription to them. I should mention here that this portion of my statement is closely parallel to that given by Dr. Harrison Brown's report. On the assumption that it is preferable to let the figures speak for themselves, I have attached three financial charts as annexes to my report to your committee. Annex No. 1 is a statement of U.S. dues to ICSU and its constituent unions in 1950 and then year by year from 1955 to 1965. Indication of the financial support of other member countries is given for the years 1956 through 1963. As the financial reports for 1964 have not been received, the table shows only the U.S. dues payable for that year. It should be noted that the dues payment to the Chemistry Union of 1964 was actually only $10,000 because the payment of $25,000 would have caused total payments to exceed the current legislative ceiling of $65,000 established in 1958. For the year 1965, the amounts payable by the United States are indicated, although actual payments for calendar year 1965 can only be made after the beginning of fiscal year 1966. I believe that it is worth noting that for the period 1956–62 the United States has paid on the average 13 percent of the total dues to ICSU and its constituent unions. I understand that the U.S. dues contribution to the United Nations and its various agencies generally exceeds 30 percent and to the Organization of American States and its agencies is about 66 percent. Putting it another way, each dollar in dues which the United States pays to ICSU is matched by $6 in dues from other countries, whereas each dollar which we pay to the United Nations complex is matched by approximately $2 from other countries.

Annex No. 2 is a graph showing the payment of U.S. dues to ICSU and the unions for the period 1952–64 together with a projection based upon this experience, from 1965 to 1975. The chart shows that U.S. dues payments in 1952 began to exceed the ceiling established by the Congress in 1935. Increases until 1956 were gradual, when with the beginning of active planning for the International Geophysical Year including the new possibility of launching artificial earth satellites, ICSU increased its dues. Since that period, domestic and international scientific activity has steadily expanded. The dues to ICSU and the unions reflect this increased activity. It can be seen that the dues for 1963 were just below the existing ceiling of $65,000 and that in 1964 the dues payable exceeded the present ceiling. The projection of this graph over the next decade indicates that the $100,000 level would be reached in 1968 and in 1975 the dues assessment would approximate $140,000. While it is impossible to predict with precision the increased costs of scientific activities of ICSU and its 14 separate unions, I believe that the rate of growth shown by the graph is expected and justified. With respect to the finances of ICSU itself as distinct from its constituent bodies, I am pleased to provide a copy of ICSU's financial statement for the year ending December 31, 1963. I understand that the auditors currently are making their annual examination of ICSU accounts and therefore we expect to receive the financial statements for 1964 within the near future. The income and expenditures of ICSU during 1963 and the balance sheet for that year are reproduced in annex 3.

With one minor exception cited below, none of the chief scientific officers of ICSU or any of its constituent unions is remunerated for his time and services. As can be seen from annex No. 3 showing the expenditures for 1963, staff salaries come to $36,626. This small paid secretariat leads barely sufficient administrative support to a wide range of scientific activities conducted by large numbers of scientists who are not compensated for their services. If ICSU and its unions are to be criticized from an administrative point of view, it is my belief that they provide inadequate administrative support for the size and complexity of the international activities they undertake. For example, among the unions themselves only the International Union of Pure and Applied Chemistry has a small paid secretariat. The Secretary General of the International Scientific Radio Union receives partial compensation for his services. A few of the unions hire the part-time services of a clerical secretary. However, most of the unions do not enjoy even this minimal administrative assistance. One of our principal objectives at the Academy, and one which I believe is shared by colleagues in the Department of State, is to encourage each of the international scientific unions to establish a minimally adequate administrative secretariat.

Earlier I mentioned by name some of the international cooperative scientific programs planned and coordinated by ICSU and its unions. I believe that it is important for us to realize that one of the restraints on the planning of these international programs is the lack of funds. The International Biological Program probably would have been ready to launch this year instead of in 1967, if $30,000 to $40,000 had been available for planning purposes a few years ago. To a less extent, this can also be said with respect to the international program on atmospheric sciences.

A program for coordination of critically evaluated numerical data is an example of an important international collaborative activity which is about halfway through its planning phase. Science is creating more and more compounds, in more and more countries, for which research scientists require numerical data of increasing accuracy. Independently of each other, scientists in several countries have undertaken almost random portions of the task of tabulating and publishing these data. ICSU has established a working group which will work out voluntary coordination of these various efforts in order to eliminate duplication, to fill in gaps between the various efforts, to bring about higher standards of accuracy, and to extend the availability of the data. The members of the ICSU Working Group, which is scheduled to meet in Frankfurt in September, come from the United States, England, France, Germany, and the U.S.S.R. However, only $1,000 has been allocated for the meeting. With more adequate funds for expenses we could assure the attendance of a Japanese expert, which would be very desirable. As it is, the cost of traveling to Frankfurt of most members of the working group somehow must be met by obtaining funds elsewhere.

Because it is outside the special competence of the National Academy of Sciences, I shall not dwell at length upon the foreign relations benefits to the United States arising from participation in this group of international scientific organizations. Members of your committee already are knowledgeable in this general area and the gentlemen accompanying me from the Department of State can speak to this important aspect of ICSU and its unions. In short, I am convinced that these nongovernmental scientific organizations serve as highly useful mechanisms for international communication and cooperation which cross both political boundaries and lines of ideological conflict. It may well be that the international relations benefits alone would justify U.S. participation in this group of international bodies and their widespread scientific activities.

Again, on behalf of the National Academy of Sciences-National Research Comcil, I wish to express my thanks for the opportunity to appear before this committee. Naturally, I would be happy to try to answer any questions which members of the committee may have. Thank you.

ABBREVIATIONS

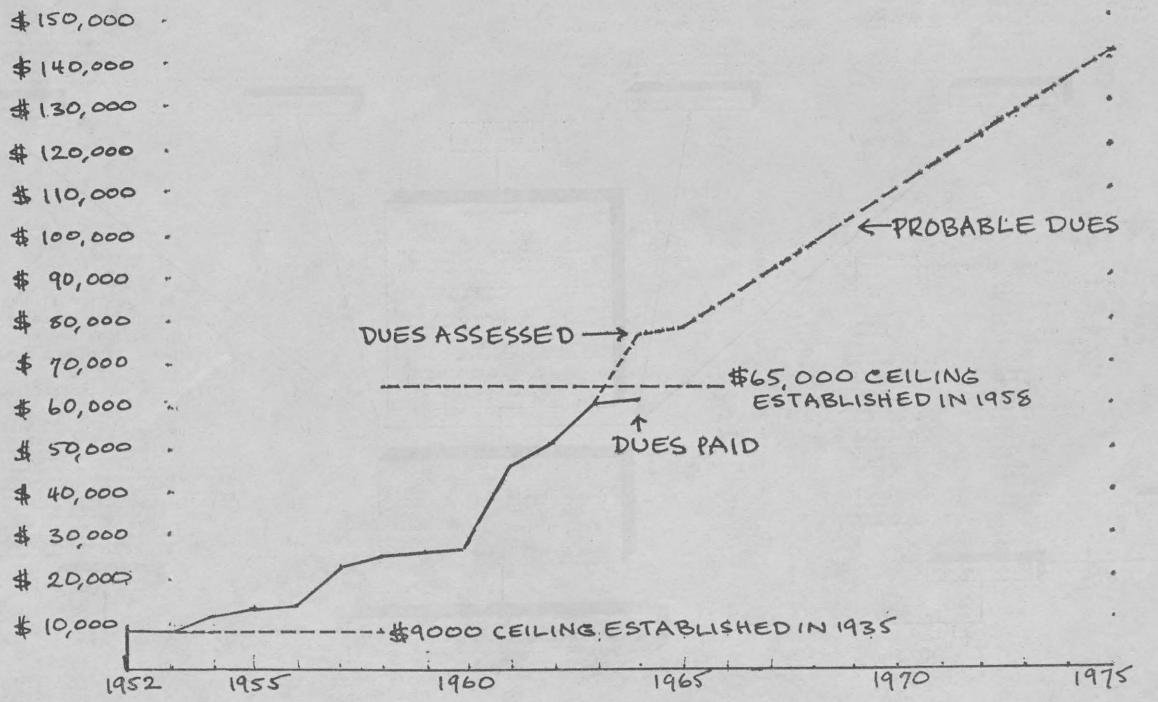
COSPAR	Committee on Space Research.
IAU	International Astronomical Union.
IBP	International Biological Program.
ICSU	International Council of Scientific Unions.
IGU	International Geographical Union.
IGY	International Geophysical Year.
IMU	International Mathematical Union.
IQSY	International Years of the Quiet Sun.
IUB	International Union of Biochemistry.
IUBS	International Union of Biological Sciences.
IUCr	International Union of Crystallography.
IUGG	International Union of Geodesy and Geophysics.
IUGS	International Union of Geological Sciences.
IUHPS	International Union of the History and Philosophy of Science.
IUPAC	International Union of Pure and Applied Chemistry.
IUPAP	International Union of Pure and Applied Physics.
IUPS	International Union of Physiological Sciences.
SCAR	Scientific Committee on Antarctic Research.
SCOR	Scientific Committee on Oceanic Research.
UMP	Upper Mantle Project.
URSI	International Scientific Radio Union.

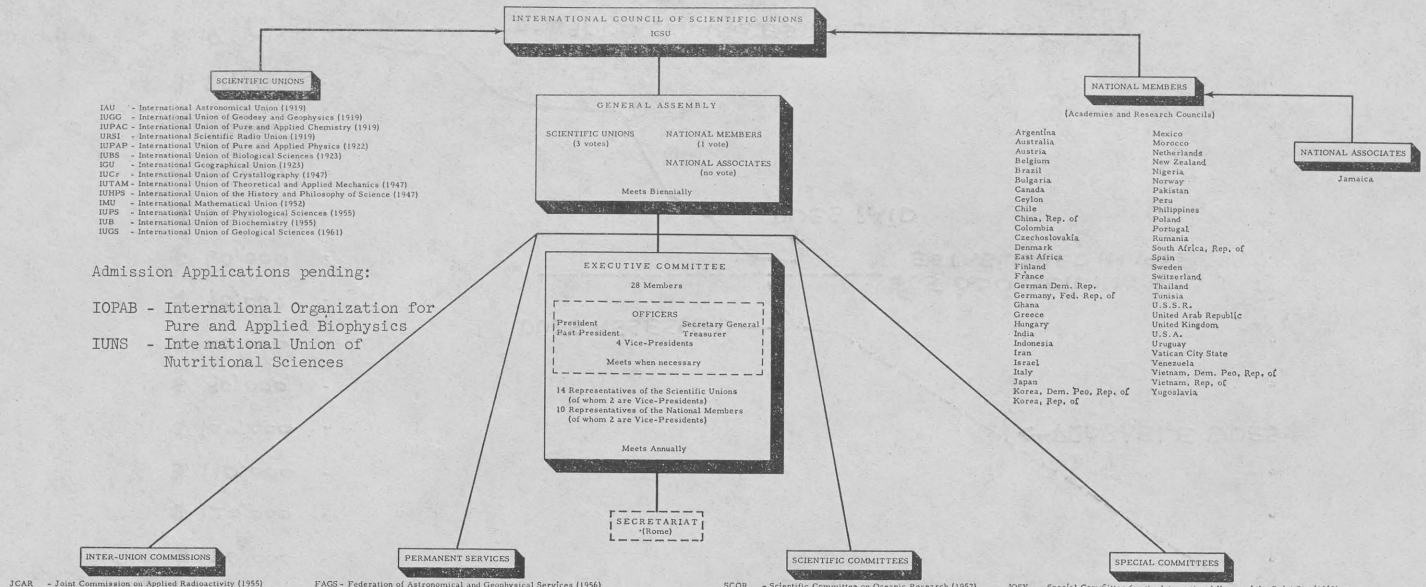
(The latest available statement of income and expenditure of the International Council of Scientific Unions and the balance sheet as of December 31, 1963, appear on pp. 4–5.)

PAYMENT OF U. S. DUES TO ICSU AND THE UNIONS, 1950-64

PROJECTION OF FUTURE OBLIGATIONS FROM 1965 TO 1975

June 4, 1965




INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS
ICSU
SCIENTIFIC UNIONS
IAU - International Astronomical Union (1919)
IUGG - International Union of Geodesy and Geophysics (1919)
IUPAC - International Union of Pure and Applied Chemistry (1919)
URSI - International Scientific Radio Union (1919)
IUPAP - International Union of Pure and Applied Physics (1922)
IUBS - International Union of Biological Sciences (1923)
IGU - International Geographical Union (1923)
IUCr - International Union of Crystallography (1947)
IUTAM - International Union of Theoretical and Applied Mechanics (1947)
IUHPS - International Union of the History and Philosophy of Science (1947)
IMU - International Mathematical Union (1952)
IUPS - International Union of Physiological Sciences (1955)
IUB - International Union of Biochemistry (1955)
IUGS - International Union of Geological Sciences (1961)
Admission Applications pending:
IOPAB - International Organization for Pure and Applied Biophysics
IUNS - International Union of Nutritional Sciences
GENERAL ASSEMBLY
SCIENTIFIC UNIONS (3 votes)
NATIONAL MEMBERS (1 vote)
NATIONAL ASSOCIATES (no vote)
Meets Biennially
EXECUTIVE COMMITTEE
28 Members
OFFICERS
President
Past-President
Secretary General
Treasurer
4 Vice-Presidents
Meets when necessary
14 Representatives of the Scientific Unions (of whom 2 are Vice-Presidents)
10 Representatives of the National Members (of whom 2 are Vice-Presidents)
Meets Annually
SECRETARIAT
(Rome)
NATIONAL MEMBERS
(Academies and Research Councils)
Argentina
Australia
Austria
Belgium
Brazil
Bulgaria
Canada
Ceylon
Chile
China, Rep. of
Colombia
Czechoslovakia
Denmark
East Africa
Finland
France
German Dem. Rep.
Germany, Fed. Rep. of
Ghana
Greece
Hungary
India
Indonesia
Iran
Israel
Italy
Japan
Korea, Dem. Peo. Rep. of
Korea, Rep. of
Mexico
Morocco
Netherlands
New Zealand
Nigeria
Norway
Pakistan
Peru
Philippines
Poland
Portugal
Rumania
South Africa, Rep. of
Spain
Sweden
Switzerland
Thailand
Tunisia
U.S.S.R.
United Arab Republic
United Kingdom
U.S.A.
Uruguay
Vatican City State
Venezuela
Vietnam, Dem. Peo. Rep. of
Vietnam, Rep. of
Yugoslavia
NATIONAL ASSOCIATES
Jamaica
INTER-UNION COMMISSIONS
JCAR - Joint Commission on Applied Radioactivity (1955)
CIG - Comité International de Géophysique (1959)
IUCAF - Inter-Union Commission on Frequency Allocations for Radio Astronomy and Space Science (1960)
IUCI - Inter-Union Commission on the Ionosphere (1960)
IUCRM - Inter-Union Commission on Radiometeorology (1960)
IUCSTR - Inter-Union Commission for Solar and Terrestrial Relationships (1960)
IUCST - Inter-Union Commission on Science Teaching (1961)
IUCAS - Inter-Union Commission on Atmospheric Sciences (1963)
PERMANENT SERVICES
FAGS - Federation of Astronomical and Geophysical Services (1956)
IAB - ICSU Abstracting Board (1953)
SCIENTIFIC COMMITTEES
SCOR - Scientific Committee on Oceanic Research (1957)
SCAR - Scientific Committee on Antarctic Research (1958)
COSPAR - Committee on Space Research (1958)
COWAR - Scientific Committee for Water Research (1964)
SPECIAL COMMITTEES
IQSY - Special Committee for the International Years of the Quiet Sun (1963)
SCIBP - Special Committee for the International Biological Programme (1963)
ICSU- IUGG Coordinating Committee on Atmospheric Sciences (1964)

ANNEX 1

Statement of U.S. dues to ICSU and its unions for the years 1950 and 1955–65

	1950	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
ICSU	$163	$196	$196	$7,800	$7,800	$7,800	$7,800	$7,800	$8,400	$16,800	$16,800	$16,800
IAU	1,307	1,307	1,307	1,307	1,307	1,307	1,307	1,307	1,568	1,568	1,568	2,743
IUB		200	200	200	200	400	400	400	400	400	400	600
IUBS	184	920	920	2,334	2,334	2,334	2,334	2,334	5,000	5,000	5,000	5,000
IUPAC	675	1,300	1,300	1,300	1,300	1,300	1,300	10,000	10,000	10,000	25,000	25,000
IUCr	420	840	840	840	900	900	900	900	900	900	900	900
IUGG	2,240	4,200	4,200	4,200	4,200	4,200	4,200	13,440	13,440	13,440	13,440	13,440
IGU	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
IUHPS	25	25	25	225	400	400	800	800	800	1,200	1,200	1,200
IMU		522	522	522	522	522	522	522	522	783	783	783
IUTAM [1]	400	400	400	400	400	400	400	840	840	840	840	840
IUPAP	320	1,440	1,680	1,680	1,680	1,680	1,680	2,280	2,280	2,280	2,280	2,280
IUPS		250	250	250	250	250	500	500	500	500	500	500
URSI	1,170	1,170	1,170	1,170	4,000	4,000	4,000	4,000	4,000	4,000	4,800	4,800
IUGS									2,250	2,250	2,250	2,250
Total	8,404	14,270	14,510	23,728	26,792	26,993	27,643	46,623	52,400	61,461	77,261	78,636
Total paid by other countries			90,114	157,203	227,036	211,633	207,367	259,909	309,440	[2] 473,000		

[1] Adherence to the International Union of Theoretical and Applied Mechanics (IUTAM) and payments of its annual dues is achieved by a U.S. national committe organized outside the framework of the Academy-Research Council. This information is provided for the sake of completeness in order to show the dues to all unions constituting the ICSU. The National Committee of IUTAM has applied to come under the organizational structure of the NAS-NRC. Therefore, it is expected that the NAS-NRC will adhere to IUTAM as it adheres to the other unions of ICSU and that the Department of State will be requested to pay the dues to this union as well.

[2] Estimated.

NOTE.—For the period of 1956–62, the United States has paid on the average 13 percent of the total dues to ICSU and the member unions.

[News From National Academy of Sciences-National Research Council, May 1963]

A Description of the National Academy of Sciences

The National Academy of Sciences is a nongovernmental organization of over 650 distinguished scientists, dedicated to the furtherance of science and to its use for the general welfare. Membership is by election only and is in recognition of research accomplishments.

The Academy was established in 1863 under a congressional charter signed by President Lincoln. Empowered to provide for all activities appropriate to academies of science, it was also required by its charter to act as an adviser to the Federal Government in scientific matters. This provision accounts for the close ties that have always existed between the Academy and the Government, although the Academy is not a governmental agency.

The National Research Council was established by the Academy in 1916, at the request of President Wilson, to enable scientists generally to associate their efforts with those of the limited membership of the Academy in service to the Nation, to society, and to science and technology at home and abroad. Members of the National Research Council receive their appointments from the President of the Academy. They include representatives nominated by the major scientific and technical societies, representatives of the Federal Government, and a number of members at large. More than 3,000 of the foremost scientists and technologists of the country cooperate in the work of the Academy-Research Council, without financial compensation, through service on the many boards and committees within its eight divisions—behavioral sciences, biology and agriculture, chemistry and chemical technology, earth sciences, engineering and industrial research, mathematics, medical sciences, and physical sciences. Also in the Academy-Research Council are three offices established to deal with matters affecting all the natural sciences—Office of Scientific Personnel, Office of the Foreign Secretary, and Office of Documentation.

Receiving funds from both public and private sources by contribution, grant, or contract, the Academy and its Research Council thus work to stimulate scientific research and its applications, to survey the broad possibilities of science, to promote effective utilization of the scientific and technical resources of the country, to serve the Government, and generally to further science and technology in the public interest.

Senator Church. Do you know of any opposition to this legislation, Mr. Rowan?

Mr. Rowan. I know of none, sir.

Senator Church. Very well. I think that completes the questions of the committee.

We want to thank you gentlemen for coming.

Mr. Rowan. Thank you very much.

(Thereupon the subcommittee proceeded to the consideration of other matters.)

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